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THE ROLE OF PATIENT IDENTIFICATION IN PATIENT SAFETY

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Matching the right patient with the right care is at the heart of safe healthcare. Patient wristbands form a vital link between the patient, local information systems, care delivery and the wider healthcare system. At present there is no standardisation across the NHS for wristband design. Colour coded wristbands have been introduced by some organisations as a barrier to patient safety incidents but there is disparity in the coding systems used between, and sometimes within, healthcare settings. This paper presents some of the human factors issues surrounding patient identification, a survey of current practice across the NHS in England and Wales and steps towards standardisation of wristbands.

Introduction

In most acute clinical environments, patient wristbands are the link between the patient and the rest of the healthcare system. Missing, incomplete or ambiguous patient identification can impact on every aspect of care from diagnosis, treatment and monitoring and throughout the patient journey from primary to tertiary care. Unreliable systems of patient identification can contribute to a range of patient safety incidents, including medication errors, blood transfusion errors, misdiagnosis and possibly fatal delays in diagnosis and treatment (Porter *et al*, 2006; Lau and Cheng, 2001; Lau *et al*, 2000).

Patient safety incidents related to patient identification

The National Patient Safety Agency's (NPSA) National Reporting and Learning System (NRLS) is the first national healthcare incident reporting system of its kind worldwide and all NHS organizations were linked up in 2003. The NRLS has a pre-defined incident category 'Patient incorrectly identified' and using a free-text keyword search 1,506 patient safety incidents were identified reported to the NRLS between its roll-out in November 2003 and July 2005 (keywords: 'wristband', 'wristbands', 'id', 'ID', 'band' and 'label'). An analysis of these reports found that while the majority of the incidents (63%) did not result in patient harm, they were reported by staff due to the potential for harm. The main types of incidents reported to the NRLS include: mismatches between patients and the documentation on their samples, records, blood transfusion samples and products and medication (65%); missing

wristbands or wristbands with incorrect data on them (16%); mismatches between patients and their medical records (10%); and failures in the manual checking processes (9%). An example of the type of patient identification incidents reported includes:

“A patient was receiving a diagnostic service, whilst undergoing the procedure they discussed their previous medical history with the healthcare professional involved. It became apparent during the course of the conversation that the patient should not be undergoing the procedure. Further investigation determined that the patient had been confused with another on the ward who shared the same surname“

Human Factors issues surrounding patient identification

A patient wristband may seem a relatively simple feature of healthcare, compared to the management of high-risk procedures, potentially lethal medical equipment and medicines and a work environment of constant vigilance and emergency situations. However, all patients admitted to acute healthcare settings are issued with a patient identity wristband, such that errors surrounding the issue or checking of wristbands may compromise every patient's safety regardless of the quality of care further down the line. Some of the human factors issues of patient identification are described.

Patient identifiers

The aim of a patient wristband is to uniquely identify the patient. At present, the patient identifiers used on a wristband are not standardized across the NHS, and sometimes within one organization. The amount of information on a wristband has steadily increased, usually with the aim of assisting delivery of care e.g. consultant name, ward name, allergies and address. Whilst there are justifiable needs for this information, multiple information categories reduce the clarity of patient identifiers and the wristband has become multi-functional. This has led to less clearly defined procedures surrounding its use. For instance, more consideration may be given to ensuring an allergy status is recorded on the wristband than verifying patient identifiers. The lack of standardisation, prioritization and space means that potential errors associated with patient identifiers include date of birth being mixed up due to differing formats and patients mixed up due to name formats (long and multiple names may be truncated or omitted; first and second names may be presented in the wrong order; nicknames and shortened names mixed up with given full names; official names and 'known as' names mixed up e.g. Nell for Helen; names from different cultures being wrongly translated or represented).

Links to systems

Most acute Trusts issue patients with a unique hospital number on admission that links them to the Trust's information systems. Multiple admissions, particularly emergencies, can result in a patient with multiple hospital numbers that require subsequent reconciliation of notes and lead to gaps in information. Patients will have different numbers at different hospitals, are often unaware of their hospital number and would not be able to verify this for patient identification. Different Trusts use different notations and length of number which can be difficult to reconcile for services outside of the Trust, e.g. National Blood Transfusion Service, pathology services. However, there is a national unique number available for all patients (introduced in 1995) – the NHS number – which will be used increasingly at the point of patient care with the development of IT systems.

The systems used for issuing wristbands often rely on previously issued patient details for example referral letters, existing notes and pre-printed “addressograph” labels – a number of which are printed ahead of the episode of care to be used on notes, samples, x-rays, test results etc. Printing ahead of time means they may not take account of changes to patient names and address and are more likely to be linked with the wrong patient than if a wristband is issued with the patient present.

Colour coding

Coloured wristbands are increasingly being used by healthcare organisations, although again this has not been standardised. Coloured wristbands may be used as an indicator of a patient’s special status or to indicate type of care, for example allergies, risk of falling, “do not resuscitate” etc. Colour coding has been introduced across the service on an ad-hoc basis and currently performs a number of functions:

- **Warning:** the colour is an indicator to staff unfamiliar with a patient that they may require special care e.g. when handling a confused patient or one at risk of falls
- **Reminder:** the colour is used to remind staff who may be familiar with a patient of their special status for example to remind staff during drug rounds of already known penicillin allergy
- **Action required:** the colour is used as an initiator of action for example consultation with notes must be made before administration of care to check for details of allergies before drugs prescription.

However, there are risks associated with colour coded wristbands:

- The wristband may not be seen
- The colour coding is not understood
- Different colour coding systems between and within Trusts means that the meaning is misinterpreted
- Patients can wear a number of coloured wristbands and not all are given equal status
- The coding maybe understood but not acted upon (for example notes are not checked to find details of allergies)
- The coding is interpreted as a protection rather than a requirement for action (wearing a coloured wristband is interpreted as all checks have been made)
- The ‘warning’ is part of a non-verbal communication process and replaces a verbal check
- Patients without coloured wristbands may be seen as not requiring certain checks or a different level of care.

High risk scenarios

Standard patient admission procedures usually involve a verification of identity with the patient before the wristband is applied. However deviations from this occur in a number of high risk scenarios such as: emergency admissions when patient may be unconscious and carrying no identification; confused patients; elderly patients and maternity services. Wristbands often get “in the way” of care – they can make it difficult to access sites for intravenous lines or surgery – and they are often removed for these reasons. The patient can then be left without any identifiers, or the wristband re-issued without the full checks being made.

Wristband design

Wristbands need to meet a large number of design criteria: they need to be waterproof,

tamperproof and comfortable to wear. Comfort is a particular concern – patients wear wristbands throughout an episode of (sometimes bed-ridden and immobile) acute care and for vulnerable users such as new babies, the elderly or those with frail skin a wristband can cause discomfort and can even damage skin over time.

New technology

Information and new technology is being introduced into healthcare and this is changing the way in which the wristband will be used. Electronic patient record systems are already in use and wristbands are often now printed rather than handwritten or using labels. Barcodes and Radio Frequency Identification (RFID) tags will mean that wristbands will link directly with hospital electronic information systems and hand-transcription errors will be reduced.

Review of current practice

Previous work by the NPSA addressed issues around manual checking and the use of technologies to ensure safer patient identification (NPSA, 2004) and guidance to the NHS on wristband compliance (NPSA, 2005). Following this, a review of current practice related to patient wristbands was undertaken to provide baseline data on the level of standardisation across the NHS. Consultation took the form of a questionnaire survey, workshops and telephone interviews with patients and staff. Sixty-two randomly selected Trusts took part in the questionnaire survey and a total of 166 individuals from those Trusts responded. This gave baseline data on what identifiers are used on wristbands, who issues wristbands and when, and the use of colour coding. The most commonly used identifiers were first name, last name, date of birth and hospital number, followed by ward, NHS number, consultant and sex. Only 37% of respondents reported that the NHS number was used. The majority of Trusts appeared to use colour coding although there was confusion and disparity: in 9 of the Trusts, staff reported different practices. Where there were consistent answers, over 90% said they did use colour coding. By far the commonest colour used was red, and around two thirds of staff reported this was used to indicate an allergy. The colours reported are shown in Table 1.

Staff focus groups reported illegibility of wristbands, lack of space for writing, skin trauma/irritation, wristbands being too tight for larger patients and the wristband being taken off during care as the most common problems associated with wristbands, together with obtaining accurate and sufficient identifiers for the wristbands from patients or carers. Patient focus groups reported concerns about information being washed off wristbands, their comfort, and particularly about the information that may be contained in barcodes that they are unable to see.

Actions to improve patient identification

The NPSA is preparing further guidance to the NHS on the use of patient wristbands. The guidance will take the form of a *Patient Safety Alert*, and the NPSA is working with the Information Standards Board to make the standardisation of the core patient identifiers mandatory for the NHS in England. The guidance will cover:

1. Guidance on the use of colour in wristbands.
2. Recommended processes to be used for producing, applying and checking wristbands.

3. A recommendation for the NHS number to be the unique patient identifier across all NHS organisations including acute Trusts.
4. Performance requirements for the design of wristbands, to address comfort, security, durability, ease of use, clarity of information and the inclusion of new technology.
5. A recommendation for all wristbands to be printed rather than handwritten.

Table 1: Colour codes used on wristbands and their meanings in a sample of NHS acute Trusts

<i>Red</i>	<i>Blue</i>	<i>Yellow</i>	<i>Orange</i>	<i>Green</i>	<i>Pink</i>	<i>Blue & white</i>
Allergy	All patients	Radioactive patient	Risk assessment	All patients	Baby girls	Bone donor
Diabetic	Baby boys	Lymphoedema		Implanted defibrillator		
Allergy/alert	Jehova witnesses	<i>Confused patient</i>		<i>Confused patient</i>		
Allergy/hypersensitivity	Neck breather	Mobility				
Allergy/no blood products	<i>Risk of falls</i>	<i>Risk of falls</i>	<i>Risk of falls</i>	<i>Risk of falls</i>		
<i>Blood transfusion</i>	<i>Blood transfusion risk</i>	Thrombolysis		Breast care		
Blood cross-match				Mastectomy limb		
Language ID	Language ID					

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